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results obtained that the Greater Cloud as a whole has a high velocity of recession with reference to our stellar system.

Part VI.—The Wave-Lengths of the Nebular Lines and General Observations of the Spectra of the Gaseous Nebulae, by W. H. Wright. (July 30, 1918, pp. 193-268, plus 9 full-page plates.) Forty-eight bright-line nebulae were observed, with various spectrographs attached to the 36-inch refractor and the Crossley reflector, but chiefly with a slitless quartz spectrograph attached to the reflector. The wave-lengths of 70 bright lines in the nebular spectrum have been determined with accuracies depending chiefly upon the brightness of the lines. Special studies have been made of the distribution of the nebular materials as represented by the radiations of different wave-lengths. The nuclei of the planetary nebulae have been given careful spectrographic observation. The spectral relationships of the bright-line nebulae and special classes of stars are briefly discussed.

The volume forms one of many in the Semicentennial Series of publications issued by the University of California.

There is obvious regret that the manuscripts of these papers on the nebulae should have remained so long in the hands of the printer, but our sentiments may well be tempered by the thought of vastly greater regrets and misfortunes in the world about us. It is scarcely necessary to say that advances made in the past two years in other departments of astronomical knowledge would have modified these nebular studies in certain particulars, but it was decided to let the manuscripts stand exactly as they were at the dates appended. W. W. CAMPBELL.

January 19, 1920.

THE SIERRA NEVADA MOUNTAINS AND THE YOSEMITE VALLEY, AS SEEN FROM MOUNT HAMILTON

The frontispiece to the present number illustrates some of the advantages of the use of plates made sensitive to the longer wave lengths of light in photographing distant objects. Ordinary photographic plates, it is well known, utilize chiefly the blue and violet light rays; these rays are so scattered by atmospheric haze that distant objects appear blurred upon such plates. The present photograph was taken with a 20-inch-focus camera, using a selenium red color screen and a plate stained with krypto-cyanin, a dye recently discovered at the U. S. Bureau of Chemistry. The light of long wave-length thus employed is relatively little affected by haze or those atmospheric disturbances which cause "bad seeing"; the distant mountains therefore show almost as clearly as the nearby ridges. As noted in the title to the plate, the Half-Dome in the Yosemite Valley is 120 miles from Mt. Hamilton; the snow ridges at the extreme right in the photograph are fully 145 miles distant. The San Joaquin Valley is hidden by the low ridges in the fore ground. The atmospheric conditions on the day the photograph was taken were fairly good, but not at all exceptional; the snow-capped Sierras are often even more distinctly seen from Mount Hamilton.

The series of experiments, of which this photograph is one, was initiated by Dr. Keivin Burns,[1] who has been studying the solar spectrum in the infra-red region with the 36-inch refractor and a grating spectrograph, using plates stained with similar dyes.

PUBLICATION COMMITTEE.

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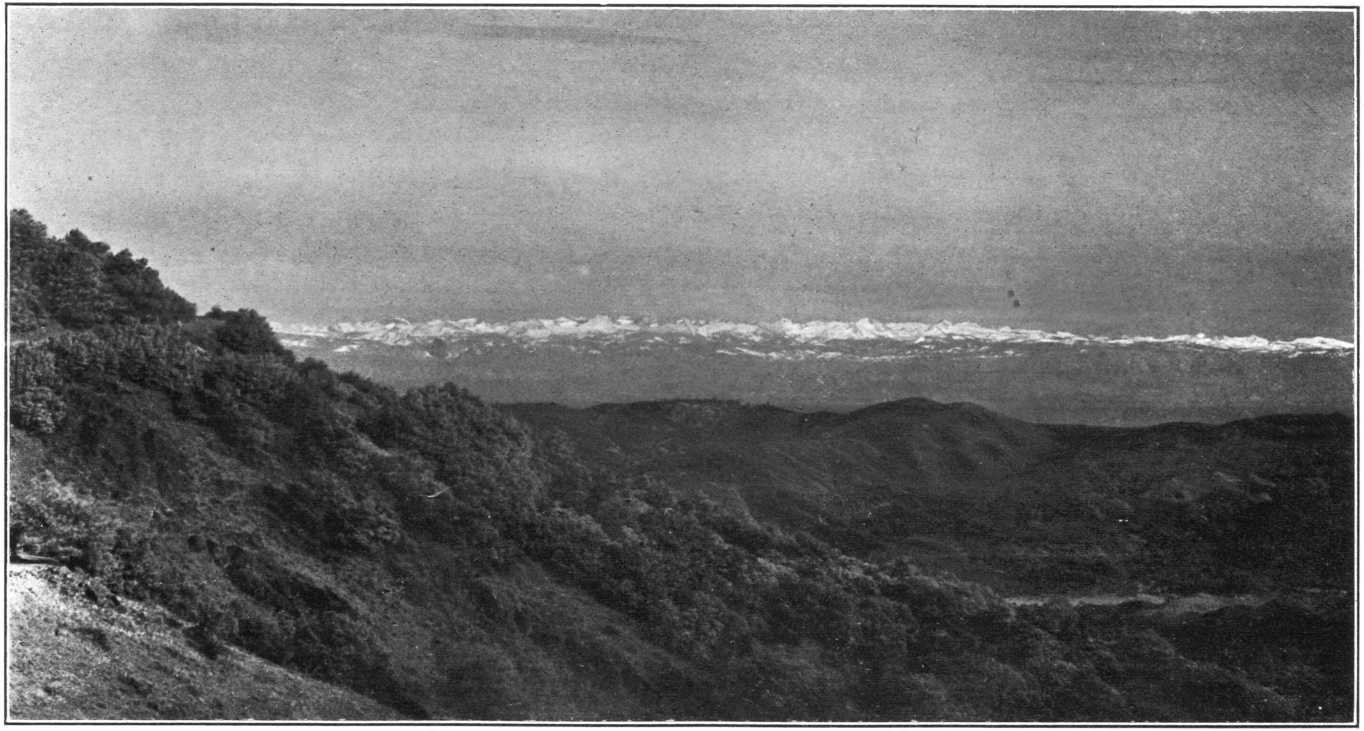
[1] See his note on another page in this number.



The Sierra Nevada Mountains and the Yosemite Valley

Photographed from Mount Hamilton on January 25, 1920. See note on page 69. The dark object just in the snow line opposite the arrows in the margin is the north face of the Half-Dome, Yosemite Valley, 120 miles from Mt. Hamilton.